

75th Air Base Wing



Preparing for PM2.5 Non-Attainment Conditions and Emission Offset Credits

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Overview



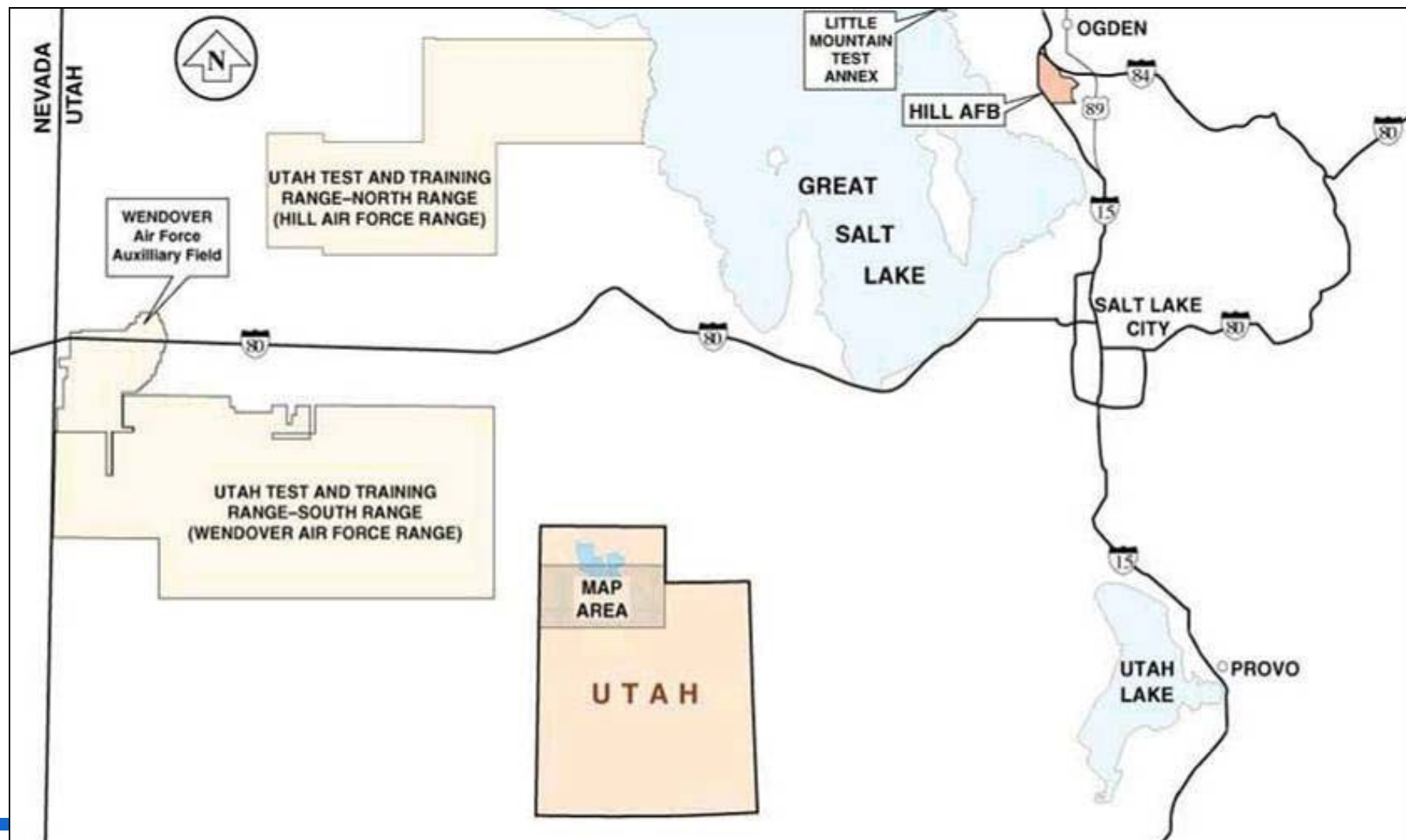
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Background

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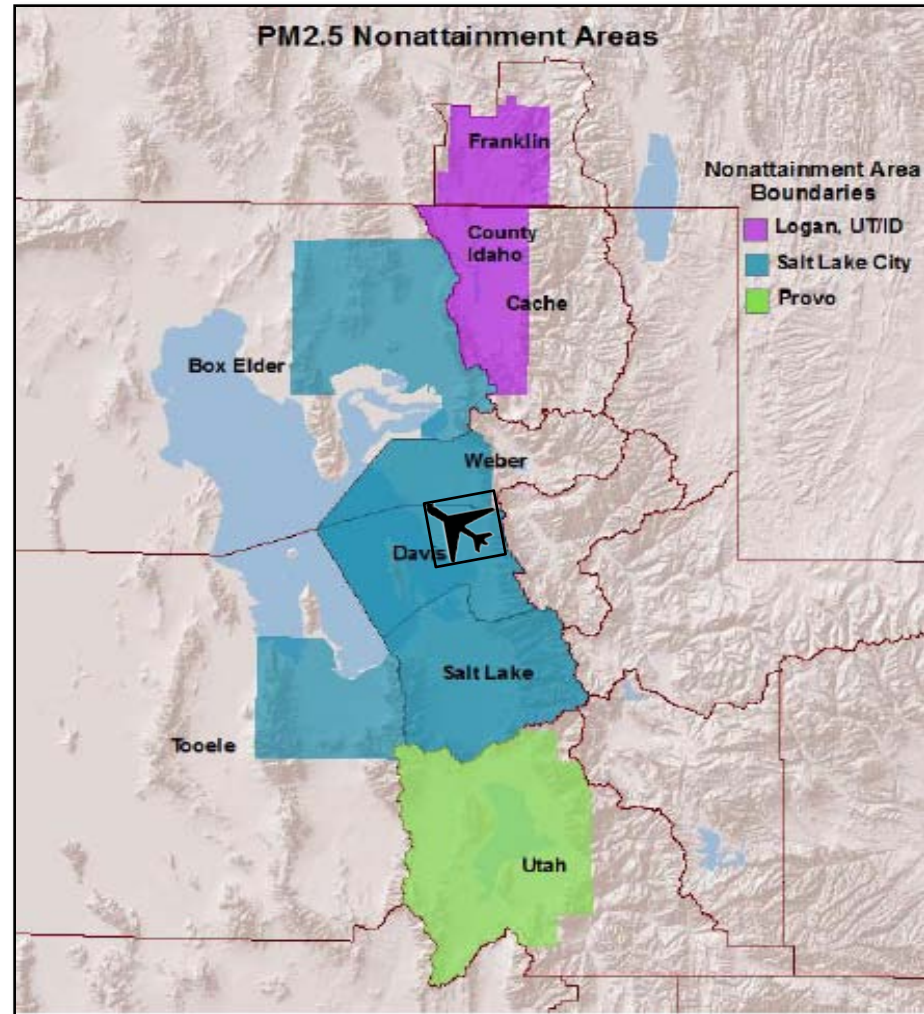




Background

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- **PM2.5 non-attainment designations issued 14 Dec 2009**
 - Hill AFB is in the non-attainment area
- **UDAQ has until 14 Dec 2012 to finalize a SIP for PM2.5 emissions**
- **Non-attainment areas must comply by Dec 2014***





Issue



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- **Implications of PM2.5 non-attainment:**
 - **Severe increase in pollution control measures imposed upon non-attainment areas (e.g. Hill AFB)**
 - **Hill must continue it's mission and continue performing operations which contribute PM2.5 (directly or indirectly)**



Strategy



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- Hill AFB is considering compliance strategies to meet the imminent and tougher PM2.5 requirements
 - PM2.5 Ambient Air Monitoring
 - New and Modified Sources
 - Existing Sources



PM2.5 Ambient Air Monitoring



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PM2.5 Monitors:

- In service at Hill AFB since 2008



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New and Modified Sources



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- **Hill is a major source for NO_x, SO₂, and VOC (precursors) and therefore, major for PM_{2.5}**
 - **Major modifications will require Lowest Achievable Emission Rate (LAER) and the acquisition of emission offset credits to mitigate emission increases exceeding major thresholds**
- **Strategy Addresses:**
 - **Precursors**
 - **Emission Factors**
 - **Controls**
 - **Offsets**
 - **Conformity**



New and Modified Sources: Precursors



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Evaluation of PM_{2.5} Precursors:

■ Precursors expected to be regulated in SIP:

- SO₂
- NO_x

■ Precursors NOT expected:

- VOC
- Ammonia

■ Implications:

- If VOC is regulated, could lose flex provisions in permit for sources of VOCs like degreasers

■ Strategy:

- Continue active involvement in SIP development





Impacts for New and Modified Sources: Emission Factors



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PM2.5 Emission Factors:

- **Absence of credible emission factors for PM2.5:**
 - AP-42 limits are “not recommended by EPA” for compliance determinations
 - AP-42 limits in use at Hill and relative to PM2.5 calculations are mostly rated D--“Below Average” for appropriateness
- **Strategy:**
 - Investigate accuracy and applicability of emission factors used
 - Determine which boilers have low NO_x burners





New and Modified Sources: LAER



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- Applicable to major modifications in non-attainment areas (BACT is the accepted control technology in attainment areas)
- Could be as simple as purchasing an engine certified to EPA standards, or as difficult and expensive as add-on control equipment and/or stack testing
- Strategy:
 - Work with UDAQ to ensure the SIP doesn't impose emission limits on Hill source categories that are more stringent than elsewhere in the country



New and Modified Sources: Emission Offsets



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- Obtaining offsets for large emission increases most challenging consequence of non-attainment
- Offsets are scarce and expensive (~ \$50K per ton)* and not necessarily available for purchase
- Even relatively small individual increases can require offsets if they're "substantially related"
- Strategy:
 - Track emission changes monthly for each pollutant
 - Bank voluntary emission reductions
 - Proactively purchase offsets where possible
 - Continue active involvement in SIP development



Impacts for New and Modified Sources: Offsets



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Table 5. State of Utah Banked Emissions

Owner	County of Origin	PM _{2.5} *	NO _x	SO ₂	VOC
BOC Americas	Davis	1.28			
Davis County Solid Waste	Davis		22.80		
O2 Blue, Inc.	Davis		1.00		
Thermo Fluid	Davis	0.21	1.41	0.01	13.60
ATK Thiokol Propulsion	Salt Lake	32.40	14.70		0.50
Elements Markets LLC	Salt Lake	3.70	30.11	17.48	16.70
Frito Lay	Salt Lake	12.07	13.52	9.66	
Hill Air Force Base	Salt Lake		23.00		
Redi-Therm	Salt Lake		0.24		0.01
Salt Lake Regional Medical	Salt Lake				6.10
Salt Lake Valley Sand & Gravel	Salt Lake	0.06		1.19	
Union Pacific Resources, Inc.	Salt Lake			2.98	3.59
Cargill	Weber	18.58			
Chevron	Davis	31.60			487.70
Concrete Products	Davis	15.84	12.87	1.35	
Pacificorp	Davis			21.00	
Silver Eagle Refining	Davis		17.50	39.00	
Construction Products	Salt Lake	6.18	31.79	0.01	0.50
Geneva Rock	Salt Lake		32.57	133.26	2.04
Harper Contracting, Inc.	Salt Lake	7.08	30.00	2.00	0.48
Hexcel International	Salt Lake		3.70		9.41
Kennecott	Salt Lake		104.91	16,801.06	9.50
Kern River Gas	Salt Lake	3.87			
Monroc	Salt Lake				4.66
Pacificorp	Salt Lake	68.97	275.98	6.57	11.01
Staker Paving	Salt Lake		182.47	15.68	
University of Utah	Salt Lake	50.64	1.50	202.90	
Total Banked ERCs		252.48	800.07	17,254.15	565.87

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New and Modified Sources: Conformity



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General Conformity:

- Hill is subject to General Conformity as a result of PM2.5 non-attainment designation
- Strategy:
 - Ensure growth allowances by working with UDAQ on development of SIP
 - Estimate emissions from known affected projects (e.g. F-35 workload) and budget for them in the SIP
 - Assume NEPA process and permitting will be performed simultaneously for time limits (1 year grace)
 - Support Air Force “Presumed-to-Conform” list
 - Incorporate Early Emission Reduction Credit (EERC)



Existing Sources

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Reasonably Available Control Technology (RACT):

- **SIP requirements demonstrating how compliance with NAAQS must be achieved in non-attainment areas for minor modifications**
- **Strategy:**
 - **Evaluate California and New Jersey PM_{2.5} SIPs and Utah's PM₁₀ SIP to identify likely sources applicable to RACT:**
 - **Emergency generators, boilers and other combustion sources, retrofitting/replacement of furnaces/water heaters**
 - **Work with UDAQ to minimize inclusion of RACT requirements and their costly implications**



Summary

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- Hill AFB was recently designated as non-attainment for PM2.5
- This designation carries many negative repercussions including much more stringent compliance requirements for PM2.5
- UDAQ is developing a SIP to outline how Hill must achieve compliance, but many requirements are a guess at this point
- Best solution is to consider all possible compliance implications and strategies to prepare for the SIP outcomes:
 - Most strategies including working with UDAQ to plead Hill's case and work in conditions favorable to Hill



Questions?



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Extra Slides



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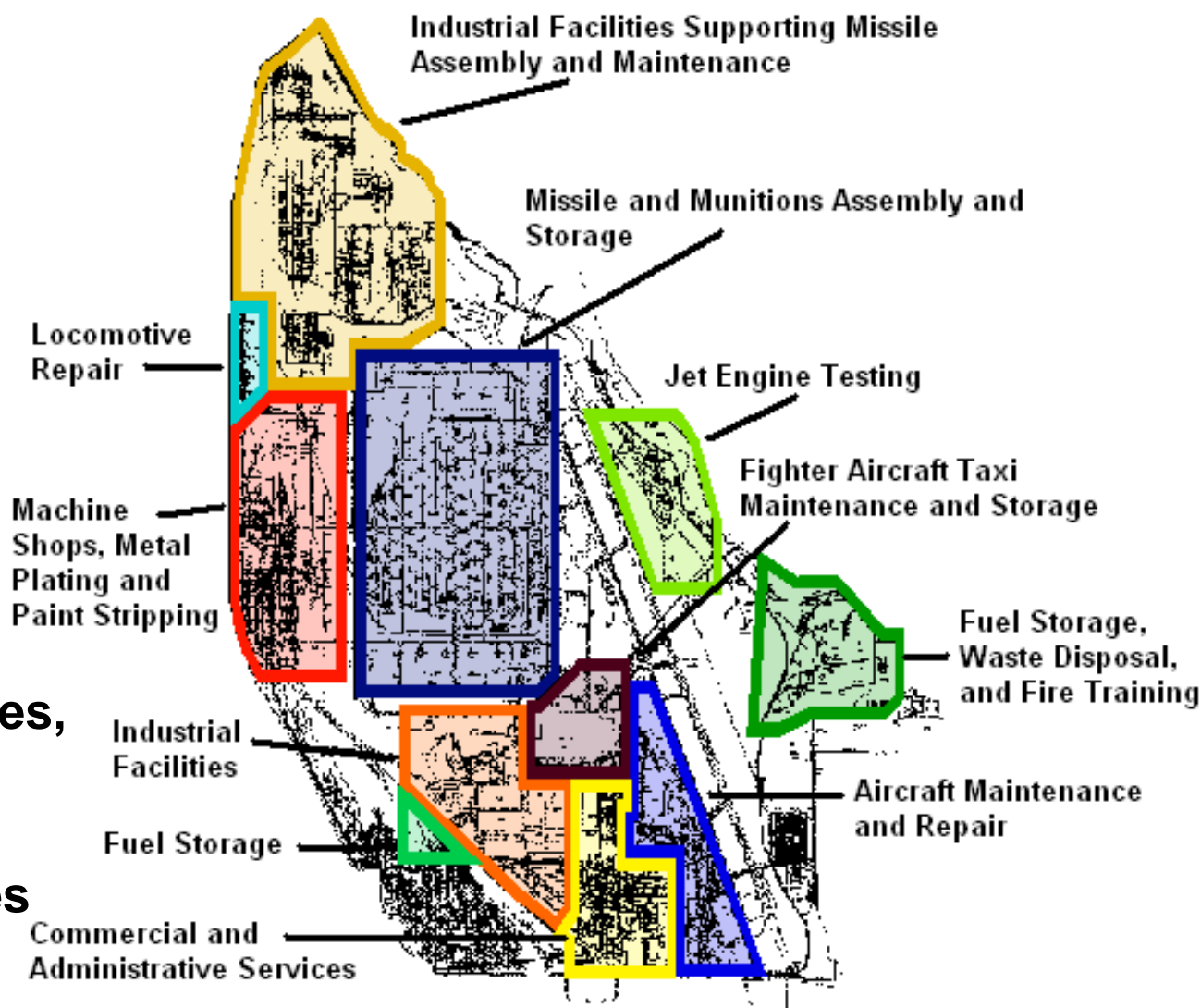


Background

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Main Base:

- F-16
- C-130
- A-10
- KC-135
- F/A-22
- Flight simulators
- Munitions and propellants
- ICBMs
- B2 composite
- Landing gear, brakes, and wheels
- ACMs
- Gas turbine engines





Utah PM2.5 SIP Timeline



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- **The next steps for the Utah Division of Air Quality (UDAQ) include:**
 - **Continued work on episode selection and filter analysis**
 - **Refining episodic emissions inventories**
 - **Assimilation of representative meteorological data**
 - **Validation of the air quality model against measured data from past episodes**
 - **Coordination with EPA on the SIP development process**
 - **Convene a meeting with stakeholders once the air quality model is validated**



Hill Compliance Strategy



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Emission Test Methods:

- EPA has yet to finalize test methods for condensable PM_{2.5}
- Unlikely that Hill will have to stack test for PM_{2.5} directly
- Strategy:
 - Work with UDAQ and EPA to ensure potential testing requirements aren't overly burdensome





Hill Compliance Strategy

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Best Available Control Technology (BACT):

- Will apply to new/modified equipment not triggering major modifications under NSR
- Hill already proposes BACT as part of their Notices of Intent (NOIs)
- Strategy:
 - Work with UDAQ as BACT determinations are made



Hill Compliance Strategy



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Emission Assessment:

- Many types of emissions are included in determining major modification under NSR:
 - PTE, actual and baseline actual emissions, stationary sources, and fugitive emissions (conditionally only)
- Strategy:
 - Identify any discrepancies between factors/methods and attempt to rectify
 - Much care and consideration should be given to emission estimates to avoid repercussions of under/over estimating
 - Methods and emission factors should be consistent